

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

February 7, 2012

PERMIT TO INSTALL
187-11

ISSUED TO
Isabella Pellet

LOCATED AT
6900 West Baseline Road
Lake Isabella, Michigan

IN THE COUNTY OF
Isabella

STATE REGISTRATION NUMBER
P0215

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

January 20, 2012

DATE PERMIT TO INSTALL APPROVED:

February 7, 2012

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

Table of Contents

Section	Page
Alphabetical Listing of Common Abbreviations / Acronyms	2
General Conditions	3
Special Conditions	5
Emission Unit Summary Table.....	5
Flexible Group Summary Table	5
Special Conditions for FGTEMPTORR.....	6

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUDRYER	A 20 MMBtu per hour softwood burner with a 6 ton per hr (4.02 ODT/hr) rotary dryer that will dry virgin softwood chips. Softwood is defined as the wood of an evergreen tree. The dryer is controlled by a high efficiency cyclone.	June 2011	FGWOODPELLETS (Permit No. 30-11), FGTEMPTORR
EUHAMMERMILL	A hammer mill used to pulverize the wood chips, which is controlled by a baghouse.	June 2011	FGMATERIAL, FGWOODPELLETS (Permit No. 30-11), FGTEMPTORR
EUTORRPRO	A temporary torrefaction process line consisting of an ACTOF® Torrefaction Reactor with a 5.5 MMBtu per hour propane burner, reactor metering bin, biomass feed hopper, densification feed hopper, briquette mill, transfer belt conveyors, airlocks and fans.	NA	FGTEMPTORR
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGTEMPTORR	A temporary torrefaction process utilizing a rotary dryer and hammermill from a stationary wood pelletizing process, and a mobile torrefaction process line to produce 1,250 tons of torrefied wood for a test burn.	EUDRYER, EUHAMMERMILL, EUTORRPRO

The following conditions apply to: FGTEMPTORR

DESCRIPTION: A temporary torrefaction process utilizing a rotary dryer and hammermill from a stationary wood pelletizing process, and a mobile torrefaction process line to produce 1,250 tons of torrefied wood for a test burn.

Emission Units: EUDRYER, EUHAMMERMILL, EUTORRPRO

POLLUTION CONTROL EQUIPMENT: High Efficiency Cyclone , Baghouse

I. EMISSION LIMITS

For the duration of this permit, EUDRYER shall not exceed the emission limits listed below in lieu of Permit No. 30-11, EUDRYER, SC I.1 through 9.

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Opacity	20 percent	6-minute average except one 6-minute average per hour of not more than 27 percent	EUDRYER	SC VI.2	R 336.1301(1)(c)
2. PM	0.10 lb per 1000 lb of exhaust gases calculated on a "dry" gas basis	Test protocol	EUDRYER	GC 13	R 336.1331(1)(a)
3. PM-10	5.0 pph	Test protocol	EUDRYER	GC 13	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
4. PM-2.5	5.0 pph	Test protocol	EUDRYER	GC 13	R 336.2804, 40 CFR 52.21 (d)
5. NOx	3.3 pph	Test protocol	EUDRYER	GC 13	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
6. CO	23.3 pph	Test protocol	EUDRYER	GC 13	R 336.2804, 40 CFR 52.21(d)
7. VOC (as propane)	22.0 pph	Test protocol	EUDRYER	GC 13	R 336.1702(a)
8. Formaldehyde (CAS 50-00-0)	1.0 pph	Test protocol	EUDRYER	GC 13	R 336.1224, R 336.1225
9. Arsenic (CAS 7784-42-1)	0.00044 pph	Test protocol	EUDRYER	GC 13	R 336.1224 R 336.1225

II. MATERIAL LIMITS

1. The permittee shall only combust dried softwood and process gases from EUTORRPRO in the burner of EUDRYER in lieu of Permit No. 30-11, EUDRYER, SC II.1. **(R 336.1205(1)(a), R 336.1224, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall only process virgin softwood chips in EUDRYER and EUTORRPRO. **(R 336.1224, R 336.1702, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

3. The permittee shall not process more than 9 tons per hour of green softwood through EUDRYER in lieu of Permit No. 30-11, EUDRYER, SC II.3. **(R 336.1205(3), R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
4. The moisture content of the softwood chips fed into EUDRYER shall not exceed 45 percent by weight. **(R 336.1225, R 336.1702, R 336.1901)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FGTEMPTORR unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the process and emission control equipment has been submitted to the AQD District Supervisor for review and approval, and is implemented and maintained. The MAP shall, at a minimum, specify the following:
 - a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
 - b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
 - c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1224, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

2. The permittee shall not operate EUDRYER unless an acceptable plan that describes how emissions will be minimized during all startups and shutdowns has been submitted to the AQD District Supervisor for review and approval, and is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer, if available, as well as incorporating standard industry practices. **(R 336.1911, R 336.1912)**
3. The temperature at the inlet of EUDRYER shall not exceed 850 degrees Fahrenheit. **(R 336.1225, R 336.1702, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The maximum design heat input capacity of burner portion of EUDRYER shall not exceed 20 MMBtu per hour on a fuel heat input basis, as certified by the equipment manufacturer. **(R 336.1205(1)(a), R 336.1224, R 336.1702, R 336.1901)**
2. The permittee shall not operate EUDRYER unless the high efficiency cyclone is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining each control device in accordance with an approved MAP for EUDRYER as required in SC III.1. **(R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.1911)**

3. The permittee shall not operate EUHAMMERMILL unless the baghouse is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining each control device in accordance with an approved MAP for EUHAMMERMILL as required in SC III.1. **(R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.1911)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations/records in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1301, R 336.1331, R 336.1702, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
2. The permittee shall conduct daily visible emissions observations, either by a certified or a non-certified reader, as required in Emission Limit SC I.1. If visible emissions are observed, a USEPA Method 9 certified visible emissions observation, which is a 6-minute average reading consisting of 15 second data points, shall be conducted by a certified reader. Records shall include the visible emissions observations (date, time, name of reader, whether the reader is certified or not), causes of abnormal opacity, corrective actions, and the results of such actions. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1301, R 336.1331, R 336.1910)**
3. The permittee shall monitor and record the moisture content of the softwood chips fed into EUDRYER, on a daily basis, in a manner as approved by the AQD Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
4. The permittee shall monitor and record, the tons per hour of green softwood chips processed in EUDRYER, in a manner as approved by the AQD Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1331, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
5. The permittee shall install, calibrate, maintain and operate, in a satisfactory manner, a device to monitor and record the temperature at the inlet of EUDRYER on a continuous basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
6. The permittee shall monitor and record, in a satisfactory manner, the tons of torrefied wood produced by FGTEMPTORR for the project. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1331, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

VII. REPORTING

1. Within seven (7) days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FGTEMPTORR. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVDRYER	57	45	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
2. SVMATERIAL	12 x 32	35	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
3. SVTR1	10	12.75	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
4. SVTR2	10	12.5	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
5. SVTR3	10	12.25	R 336.1225, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. The permittee shall not operate EUTORRPRO at this site beyond September 1, 2012. This permit will be void after September 1, 2012. The permittee shall keep a record of the dates EUTORRPRO operates at this site. The permittee shall keep this information on file and make it available to the Department upon request. **(R 336.1201)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).